

REMARKS

Applicants appreciate the Examiner's indication that claims 20 and 21 are directed to allowable subject matter.

Additionally, in the Office Action, the Examiner objected to the drawings and objected to claim 23 as being of improper dependent form. Further, the Examiner rejected claims 1 and 2 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,526,464 to Jobs et al. ("Jobs") in view of U.S. Patent No. 6,381,239 to Atkinson et al. ("Atkinson") and U.S. Patent No. 6,273,771 to Buckley et al. ("Buckley"); rejected claims 3 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Jobs, Atkinson, and Buckley, and further in view of U.S. Patent No. 6,301,623 to Simpson et al. ("Simpson"); rejected claims 4, 5, and 7 under 35 U.S.C. § 103(a) as being unpatentable over Jobs, Atkinson, Buckley, Simpson and further in view of U.S. Patent No. 6,532,500 to Li et al. ("Li") and U.S. Patent No. 6,366,656 to Lee et al. ("Lee"); rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Jobs, Atkinson, Buckley, and Li, and further in view of U.S. Patent No. 6,202,097 to Foster et al. ("Foster"); rejected claims 9-17 under 35 U.S.C. § 103(a) as being unpatentable over Jobs, Atkinson, Buckley, Li, and Foster, and further in view of U.S. Patent No. 6,330,614 to Aggarwal et al. ("Aggarwal"); rejected claims 18, 19, 23 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Atkinson, Li, Foster, and Buckley; rejected claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Atkinson, Li, Foster, Buckley, and U.S. Patent No. 5,185,693 to Loftis et al. ("Loftis"); and rejected claim 25 under 35 U.S.C. § 103(a) as being unpatentable over Atkinson, Li, and Foster, and further in view of Lee.

By this amendment, Applicants propose amending the specification to correct minor errors relating to the reference numbers in the drawings. Applicants submit that in view of these amendments, the reference numbers in the drawings are consistent with the discussion in the specification. The objection to the drawings should, therefore, be withdrawn.

Applicants have additionally cancelled claim 23, thus obviating the objection to this claim.

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) based on the patents to Jobs, Atkinson, and Buckley. For the following reasons, Applicants respectfully traverse.

In rejecting claim 1, the Examiner states that “Jobs teaches all the limitations of Claim 1 except the midplane connected to the bus controller, the plurality of additional circuit boards connected to the midplane, and the local control logic for controlling the switch.” (Office Action, paragraph number 4). The Examiner, however, contends that Atkinson discloses the recited midplane and Buckley discloses the local control logic recited in claim 1. (Id.) According to the Examiner, one of ordinary skill in the art would have found it obvious to combine these teachings to obtain the invention recited in claim 1. (Id.)

Jobs is directed to a system that includes a primary serial bus and one or more serial sub-buses separated from the primary serial bus by gating devices. (Jobs, Abstract). As disclosed in Fig. 2 of Jobs, gates, such as gates 206 and 208, are used to enable a selected one of sub-buses 214 and 216. (See Jobs, Fig. 2 and column 2, lines 26-46). This concept of creating sub-buses from a single bus, as disclosed by Jobs, is similar to the admitted conventional technique disclosed by Applicants in Fig. 1B. As shown in

Fig. 1B of the pending application, a multiplexer 112 enables one of sub-buses 113 and 114 to be an active bus and isolates the non-active bus. (Specification, page 2, line 20 through page 3, line 5). As is further discussed in the pending specification, the bus system shown in Fig. 1B is not without its disadvantages. (Specification, page 3 line 6 through line 13).

Atkinson discloses a multiple application switching platform including a shelf that contains a midplane. (Atkinson, Abstract). Atkinson generally discloses that the midplane includes “message buses” 9A and 9B. (See Atkinson, col. 11, line 52 through col. 11, line 66).

Buckley is directed to a control system for a marine vessel. Buckley generally discloses a bus to which is connected a controller that controls a device such as a pump. (Buckley, col. 19, lines 1-11).

Applicants submit that Jobs, Atkinson, and Buckley, either alone or in combination, do not disclose or suggest all of the features recited in claim 1. Moreover, Applicants submit that Atkinson and Buckley do not cure the admitted deficiencies of Jobs as applied to pending claim 1.

Claim 1 recites a plurality of additional circuit boards that include a switch configured to electrically connect the circuit board corresponding to the switch to the first circuit board through the serial bus interface when the switch is controlled to be in a first state and to electrically isolate the circuit board corresponding to the switch from the serial bus interface on the first circuit board when the switch is controlled to be in a second state. As the Examiner concedes, Jobs does not disclose a plurality of circuit boards as recited in claim 1. (Office Action, paragraph number 4). Although Atkinson

discloses a number of circuit boards connected through a midplane, nothing in Atkinson discloses or suggests that each circuit board includes the switch recited in claim 1.

Buckley merely discloses a bus connected to a local controller and a smart device, but completely fails to disclose or suggest a plurality of circuit boards containing a switch, as is recited in claim 1.

Claim 1 additionally recites that each of the plurality of additional circuit boards includes local control logic for outputting a signal for controlling the state of the switch, the local control logic controlling the switch to be in the first state when the switches on each of the other of the plurality of additional circuit boards are in the second state.

Although Buckley may generally disclose a local control for a bus, the local controller of Buckley is said to control a device such as a pump 230. Nothing in Buckley discloses or suggests control logic for controlling a switch as recited in claim 1.

Thus, Applicants submit that even if Jobs, Atkinson, and Buckley were combined as the Examiner suggests, the resulting combination would still not disclose or suggest each of the features recited in claim 1.

Applicants submit that the rejection of claim 1 under 35 U.S.C. § 103(a) is additionally improper as there is no motivation to combine the references as the Examiner suggests. Applicants remind the Examiner that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See MPEP 2143.01. In the Office Action, the Examiner states that one of ordinary skill in the art would combine the references “in

order to create a device which expands the address space of a serial bus in a low cost, modular way.” (Office Action, page 3). Although expanding the address space is listed as a benefit in the disclosure of Jobs, Applicants submit that this motivation does not provide any reason to combine Jobs, Atkinson, and Buckley as the Examiner suggests. If anything, one of ordinary skill in the art reading the patent to Jobs would be likely to “expand the address space” in the systems of Atkinson and Buckley simply by incorporating the serial bus, as taught by Jobs, into the systems of Atkinson and Buckley.

For at least these reasons, Applicants submit that the rejection of claim 1 under 35 U.S.C. § 103(a) is improper and should be withdrawn. The rejection of claim 2 should also be withdrawn, at least because this claim depends from claim 1.

Dependent claims 3 and 6 stand rejected under 35 U.S.C. § 103(a) based on patents to Jobs, Atkinson, and Buckley, as applied by the Examiner in rejecting claim 2, and additionally in view of Simpson. Applicants have reviewed the disclosure of Simpson, and submit that Simpson does not disclose or suggest the above-mentioned deficiencies of Jobs, Atkinson, and Buckley described above with reference to claim 1. Accordingly, the rejections of claims 3 and 6 should be withdrawn for these reasons and by virtue of the dependency of these claims from claim 2.

Dependent claims 4, 5, and 7 stand rejected under 35 U.S.C. § 103(a) based on patents to Jobs, Atkinson, Buckley, and Simpson, as applied by the Examiner in rejecting claim 3, and further in view of Li and Lee. Applicants have reviewed the disclosures of Li and Lee, and submit that neither of these two patents disclose or suggest the above-mentioned deficiencies of Jobs, Atkinson, Buckley, and Simpson. Accordingly, the rejections of claims 4, 5, and 7 should also be withdrawn for these reasons and at least by

virtue of the dependency of these claims from claims 1 or 3.

Dependent claim 7 recites additional features that are not disclosed or suggested by Li and Lee. Claim 7 further defines the additional circuit boards recited in claim 1 as including first, second, and third switches. The first switch selectively connects or disconnects a first portion of a serial bus, implemented by the serial bus interface from the first circuit board, to a second portion of the serial bus. The second switch selectively connects or disconnects the second portion of the serial bus to a third portion of the serial bus. The third switch selectively connects or disconnects the third portion of the serial bus to a fourth portion of the serial bus. The Examiner contends that these features of claim 7 are disclosed by Li. (Office Action, paragraph number 6). Applicants respectfully disagree.

Li discloses a switching circuit 200 including pairs of switches 202, 204 and 206, 208. (Li, Fig. 2 and column 6 lines 24-61). The switches are connected so that they conduct signals between either SCSI controllers 224 and 226 or between SMB devices and SMB controller 228. (Id.)

In contrast to Li, claim 7 includes first, second, and third switches that selectively select or disconnect first, second, third, and fourth portions of the serial bus to one another. The switches of Li, however, merely select whether a bus is used for SCSI controllers or SMB controllers. Thus, the features recited in claim 7 are significantly different than the switches recited in Li. Accordingly, for this reason also, Applicants submit that claim 7 is not disclosed or suggested by the cited patents, either alone or in combination.

Dependent claim 8 stands rejected under 35 U.S.C. § 103(a) in view of Jobs, Atkinson, Buckley, Li, and further in view of Foster. Claim 8 further defines the features of claim 7 and recites that each of the plurality of additional circuit boards includes a local processor and a bus controller interfacing the local processor to the fourth portion of the serial bus, the local control logic circuit being connected to receive control information from the first circuit board and the local processor and control the first, second, and third switches based on the received control information. In contrast, although Foster may disclose “processors” and a “local processor bus,” Foster does not disclose or suggest the combination of features recited in claim 8. For example, Foster does not disclose or suggest a bus controller interfacing the local processor to the fourth portion of a serial bus, as recited in claim 7. Additionally, Foster does not disclose or suggest a local control logic circuit being connected to receive control information from a first circuit board and the local processor and control first, second, and third switches based on the received control information.

For at least these reasons, and in addition to the dependency of claim 8 from claim 7, Applicants submit that the rejection of claim 8 is improper and should be withdrawn. Additionally, Applicants note that the rejection of claim 8 is an improper rejection because although claim 8 depends from a claim that was rejected in view of Simpson, claim 8 was not rejected in view of Simpson.

Claims 9-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jobs, Atkinson, Buckley, Li, Foster, and Aggarwal. Applicants respectfully traverse these rejections.

In rejecting claims 9-17, the Examiner interprets Jobs, Atkinson, Buckley, Li, and Foster as these references were applied to claim 8. (Office Action, paragraph number 8). Additionally, the Examiner relies on Aggarwal as teaching “a routing engine and a network router.” (Id.).

Claim 9 is directed to a network device including a routing engine and a packet forwarding engine. The packet forwarding engine includes a midplane, a first circuit board having a master control processor, and a plurality of second circuit boards each having a control processor. The first and second circuit boards are electrically coupled through the midplane via a serial control bus, the second circuit boards each additionally include a switch configured to electrically connect the second circuit board to the first circuit board via the serial control bus when the switch is controlled to be in a first state and to electrically isolate the second circuit board from the serial control bus when the switch is controlled to be in a second state. The switch of a particular one of the second circuit boards being in the first state only when the switches on each of the other of the second circuit boards are in the second state.

Applicants submit that, based on reasons similar to those given above, none of Jobs, Atkinson, Buckley, Li, and Foster, either alone or in combination, disclose or suggest these features of claim 9. Aggarwal additionally fails to disclose or suggest these features.

Aggarwal is directed to methods and systems for substituting use of the normal checksum field space in IP datagram headers for obviating current processing time and addressing space limitations. (Aggarwal, Abstract). Although Aggarwal does mention routers and a router network, Applicants submit that nothing in Aggarwal discloses or



suggests a packet forwarding engine that includes a midplane, a first circuit board, and a plurality of second circuit boards, as recited in claim 9. Applicants submit that in combining the various patents as stated in the Office Action, the Examiner is using impermissible hindsight taken entirely from Applicants' disclosure.

For at least these reasons, the rejection of claim 9 is improper and should be withdrawn. The rejection of claims 10-17, based on Jobs, Atkinson, Buckley, Li, Foster, and Aggarwal, should also be withdrawn, at least because of the dependency of these claims, either directly or indirectly, from claim 9.

Claims 18, 19, 23, and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Atkinson in view of Li, Foster, and Buckley. Applicants respectfully traverse this rejection.

In rejecting these claims, the Examiner states:

Atkinson teaches all the limitations of Claims 18, 19, 23, and 24 except for: a series of switches for selectively connecting and disconnecting portions of the serial bus together; a local processor; a bus controller which interfaces it to the fourth portion of the serial bus; a local control logic circuit connected to receive control information from the external circuit board and the local process and control the first, second, and third switches, the local control logic circuit connecting the external circuit board and the local processor to different portions of the two wire serial bus; and a voltage monitor and temperature sensor connected to the second portion of the bus (See Figure 1 of Atkinson).

(Office Action, paragraph number 9). Applicants initially note that although the Examiner appears to be primarily relying on Atkinson, the Examiner concedes that Atkinson fails to disclose every element of claims 18 and 19. If the Examiner continues to apply Atkinson, Applicants request that the Examiner specifically

state which features of Atkinson, if any, the Examiner is relying on in rejecting these claims.

Applicants submit that Li, Foster, and Buckley fail to disclose or suggest the features of independent claim 18 that the Examiner concedes are missing from Atkinson. For example, claim 18 recites, among other things, a first switch for selectively connecting or disconnecting a first portion of a two wire serial bus from an external circuit board to a second portion of the two wire serial bus, a second switch for selectively connecting or disconnecting the second portion of the two wire serial bus to a third portion of the two wire serial bus, and a third switch for selectively connecting or disconnecting the third portion of the two wire serial bus to a fourth portion of the two wire serial bus. The Examiner contends that these features of claim 18 are disclosed by Li. (Office Action, paragraph number 9).

Li, as previously mentioned, discloses a switching circuit 200 including pairs of switches 202, 204 and 206, 208. (Li, Fig. 2 and column 6 lines 24-61). The switches are connected so that signals can be conducted between either SCSI controllers 224 and 226 or between SMB devices and SMB controller 228. (Id.). Li, however, completely fails to disclose or suggest first, second, and third switches for selectively connecting first, second, and third portions of a two wire serial bus, as recited in claim 18. The SCSI controllers 224 and 226 in Li communicate via a SCSI bus, not a two-wire serial bus. Additionally, nothing in Li discloses or suggests first, second, and third portions of a bus, much less a two-wire serial bus, as recited in claim 18. Instead, Li appears to disclose a single SCSI bus 156 that may be accessed, depending on the state of switches 204-208, by either SMB controllers or SCSI controllers. Further, the switches of Li appear to

merely select whether a bus is used for SCSI controllers or SMB controllers. In contrast to Li, claim 18 includes first, second, and third switches that selectively select or disconnect first, second, and third, portions of the two-wire serial bus to one another. Thus, contrary to the Examiner's assertions, Applicants submit that Li fails to disclose or suggest many of the features recited in claim 18.

In rejecting claim 18, the Examiner appears to further contend that Buckley discloses the local control logic recited in claim 18. (Office Action, paragraph number 9). Buckley, however, merely discloses a bus connected to a local controller and a smart device. Buckley completely fails to disclose or suggest the local control logic circuit recited in claim 18, which receives control information from the external circuit board and the local processor and controls the first, second, and third switches based on the received control information.

Applicants have studied the disclosure of Foster, and submit that Foster fails to cure the above-noted deficiencies of Atkinson, Li, and Buckley. Accordingly, Applicants submit that the applied references, either alone or in combination, fail to disclose or suggest each element of claim 18. Accordingly, the rejection of this claim should be withdrawn. The rejection of claims 19 and 24, at least by virtue of their dependency on claim 18, should also be withdrawn.

Applicants additionally submit that the rejection of claims 18, 19, and 24 under 35 U.S.C. § 103(a) is additionally improper as there is no motivation to combine the references as the Examiner suggests. The Examiner appears to be merely picking and choosing various features from the cited references and combining them in a manner

suggested only by Applicants' specification. Thus, for this reason also, the rejection of claims 18, 19, and 24 is improper and should be withdrawn.

Dependent claim 22 stands rejected under 35 U.S.C. § 103(a) in view of Atkinson, Li, Foster, and Buckley, as applied by the Examiner in rejecting claim 18, and further in view of Loftis. Applicants have reviewed the disclosure of Loftis, and submit that this patent fails to disclose or suggest the deficiencies of Atkinson, Li, Foster, and Buckley, as applied to claim 18. Accordingly, the rejection of claim 22 is also improper and should be withdrawn.

Dependent claim 25 stands rejected under 35 U.S.C. § 103(a) in view of Atkinson, Li, and Foster, as applied by the Examiner in rejecting claim 18, and further in view of Lee. Applicants have reviewed Lee, and submit that this patent fails to disclose or suggest the deficiencies of Atkinson, Li, and Foster, as applied to claim 18. Accordingly, the rejection of claim 25 is also improper and should be withdrawn. Additionally, Applicants note that the rejection of claim 25 is an improper rejection because although claim 25 depends from a claim that was rejected in view of Buckley, claim 8 was not rejected in view of Buckley.

In view of the foregoing remarks, Applicants submit that the claimed invention is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the

filing of this paper, including extension of time fees, to Deposit Account 50-1070 and  
please credit any excess fees to such deposit account.

Respectfully submitted,

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